

Unit 5 Worksheet 2 Perpendicular Bisectors

State two things that a perpendicular bisector does to a segment.

1. \_\_\_\_\_
2. \_\_\_\_\_

3. The point at which all perpendicular bisectors meet in a triangle is called the \_\_\_\_\_.

4. Solve for *r* and *q* if:

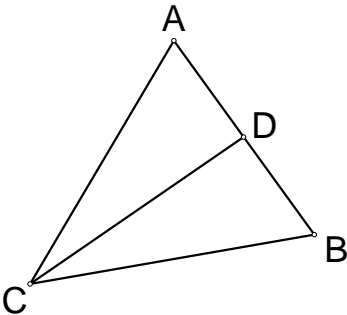
$\overline{CD} \perp \text{bisector of } \overline{AB}$

$BD = 6r + 4$

$AD = 22 + 3r$

$m\angle CAB = 8q + 17$

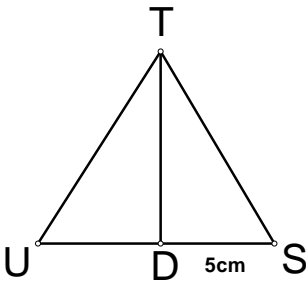
$m\angle ACD = 10 + q$



$r = \underline{\hspace{2cm}}$

$q = \underline{\hspace{2cm}}$

5.  $\triangle STU$  is equilateral and  $\overline{TD} \perp \text{bisector of } \overline{SU}$ . Find the missing side lengths.



$TS = \underline{\hspace{2cm}}$

$TU = \underline{\hspace{2cm}}$

$SU = \underline{\hspace{2cm}}$

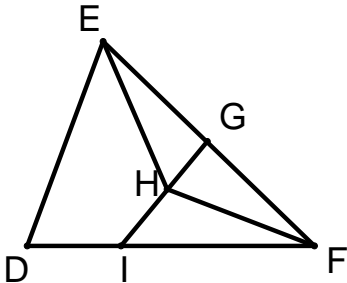
6. In  $\triangle DEF$ ,  $\overline{GI}$  is a  $\perp$  bisector.

Find *x* if  $EH = 16$  and  $FH = 6x - 5$ .

$x = \underline{\hspace{2cm}}$

Find *y* if  $EG = 3.2y - 1$  and  $FG = 2y + 5$

$y = \underline{\hspace{2cm}}$



Find *z* if  $m\angle EGH = 12z$ .

$z = \underline{\hspace{2cm}}$

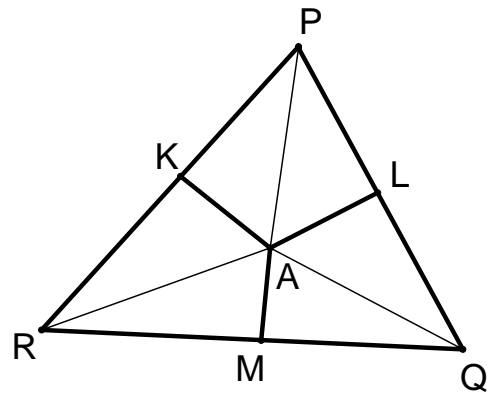
7. Solve for the following variables if  $\overline{AK}$ ,  $\overline{AL}$ ,  $\overline{AM}$  are perpendicular bisectors and :

$$RA = 8x + 16$$

$$PA = 5y - 6$$

$$AQ = 24$$

$$m\angle RMA = 20z$$



$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

$$z = \underline{\hspace{2cm}}$$

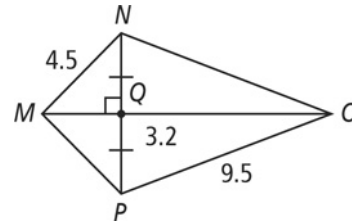
Use the figure at the right for numbers 8-11.

8.  $\overline{MO}$  is the perpendicular bisector of  $\triangle \underline{\hspace{1cm}}$  &  $\triangle \underline{\hspace{1cm}}$  .

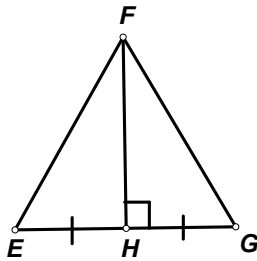
9. Find  $MP$ .

10. Find  $NO$ .

11. Find  $NP$ .



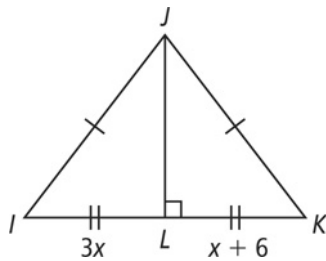
12. What is the measure of  $x$  if  $\angle FHG = 4x - 6$ ? (Hint: What is the angle equal to in the picture?)



$$x = \underline{\hspace{2cm}}$$

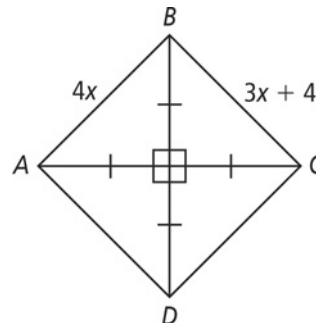
For numbers 13 & 14, solve for  $x$ .

- 13.



$$x = \underline{\hspace{2cm}}$$

- 14.



$$x = \underline{\hspace{2cm}}$$